

Dead Pixels

how to identify and (sometimes) correct them

By H. Baggen

TFT monitors and digital cameras are becoming steadily more popular and more affordable. Unfortunately, users of such devices are frequently confronted with pixels that do not function correctly. How can you identify such pixels, and what can you do to correct them?

Dead pixels, stuck pixels, hot pixels: all of these terms refer to pixels in displays or CCDs that don't work properly. Users of TFT screens and Digicams complain increasingly about this problem. However, this is certainly not the result of poor product quality or inadequate quality control by the manufacturer. We are simply being confronted with a consequence of the fact that we demand increasingly higher resolution from our screen or camera. In the case of a 15-inch TFT monitor with a resolution of 1024×768 pixels, there are no less than 2,359,296 transistors on the glass plate, with their associated colour filters (red, green and blue). If something is wrong with one of these transistors, its associated switching electrode or a lead, there is a chance that this pixel will always remain fully dark or fully light. As a user, you will see this on the screen as a spot that always has the same colour: white, black, one of the primary colours or a combination of the primary colours. The manufacturer or importer will generally be inclined to replace a TFT screen with such 'dead' pixels only if a fair number of them are defective (e.g. seven).

If you want to know how a TFT screen works, you might want to look at Hardware Extreme [1] or Tom's Hardware Guide [2]. You can also find a good description of the dead-pixel problem on the American site of NEC/Mitsubishi [3].

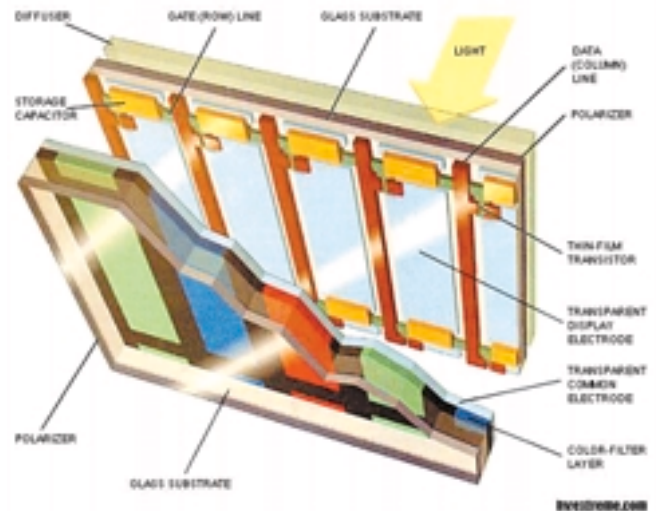
In the case of a TFT screen, you can avoid buying an unsatisfactory unit by testing the screen before making your purchase, since there is

no remedy for dead pixels. For this, you can use a standard monitor test program that can display uniform red, green and blue screens. However, there is also a small program that displays the three primary colours just for this purpose. This can be downloaded from the Notebook Buyer's HomePage [4] (among others).

In the case of digital cameras, a similar problem occurs with defective pixels, but the cause is different. However, the result is comparable to a TFT display. At fixed locations in the photo, for example, points may appear that always have the same colour (or are white). These are referred to as 'hot pixels' in the case of cameras, since the defective pixels almost always appear to be brighter than their surroundings.

You can find a good description of this phenomenon on the (German-language) site of FotoKing [5].

The manufacturer of a digital camera is usually able to eliminate defective pixels using software, so that they are no longer visible. However, you have to send the camera to the importer to have this done. A handy and free expedient for eliminating dead pixels is available from Mediachance [6]. 'HotPixels Eliminator' is a program that automatically 'repairs' defective pixels in all subsequent photos



once the coordinates of these pixels have been entered.

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Internet Addresses:

- [1] Hardware Extreme:
www.hwextreme.com/reviews/monitor/lcd/tech/print.shtml
- [2] Tom's Hardware Guide:
www4.tomshardware.com/display/99q2/990624/tftl-05.html
- [3] NEC/Mitsubishi:
http://support.necmitsubishi.com/nec/common/library/lcd_dead_pixel.htm
- [4] Notebook Buyer's HomePage:
www.edgeworld.com/notebook/old/dead.htm
- [5] FotoKing:
www.fotoking.de/body_hot_pixel_stuck_pixel.html
- [6] Mediachance:
www.mediachance.com/digicam/hotpixels.htm